SPACECRAFT SYSTEMS

SoC2016 32-bit Space Application On-Chip System

The SoC2016 is the first domestically developed heterogeneous multi-core SoC designed for integrated satellite control and data processing applications. It combines a Cortex-A9 processor core with a DSP digital signal processor, floating-point processor, and multiple communication interfaces including 1553B, CAN, and SpaceWire buses, as well as a DMA controller. The chip achieves performance exceeding 1000 MIPS @ 500 MHz, with power consumption below 3 W, reaching advanced international standards.

TECHNICAL SPECIFICATIONS

SPECIFICATIONS	
Process Technology	0.13 µm
Dimensions (mm)	41 × 41 × 10
Weight (g)	12
Operating Temperature (°C)	−55 to +125
Storage Temperature (°C)	−65 to +150
Communication Interface	SpaceWire / 1553B / CAN / RS-422
Package Type	CCGA1153
Quality Grade	CAST C

Quick Overview

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Key Features

- High functional integration with Cortex-A9 and DSP cores, floating-point processor, and 1553B, CAN, and SpaceWire interfaces.
- High computational performance exceeding 1000 MIPS @ 500 MHz.
- Excellent radiation tolerance with triple modular redundancy and radiation-hardened unit design.

- Independently developed and fully controllable technology.

Applications

- Used in satellite control management and image data processing systems, research completed in 2016.

Documentation & Resources

- Technical Specifications
- Applications